



***CALIFORNIA ENERGY COMMISSION***  
***ELECTRICITY ANALYSIS OFFICE***

***California's Hydroelectric Resources:  
Development, Diversity, and Variability***

***June 5, 2003***

***by Jim Woodward***

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**Fig. II-2. Cumulative Generating Capacity in California  
by Decade and Primary Energy Type**

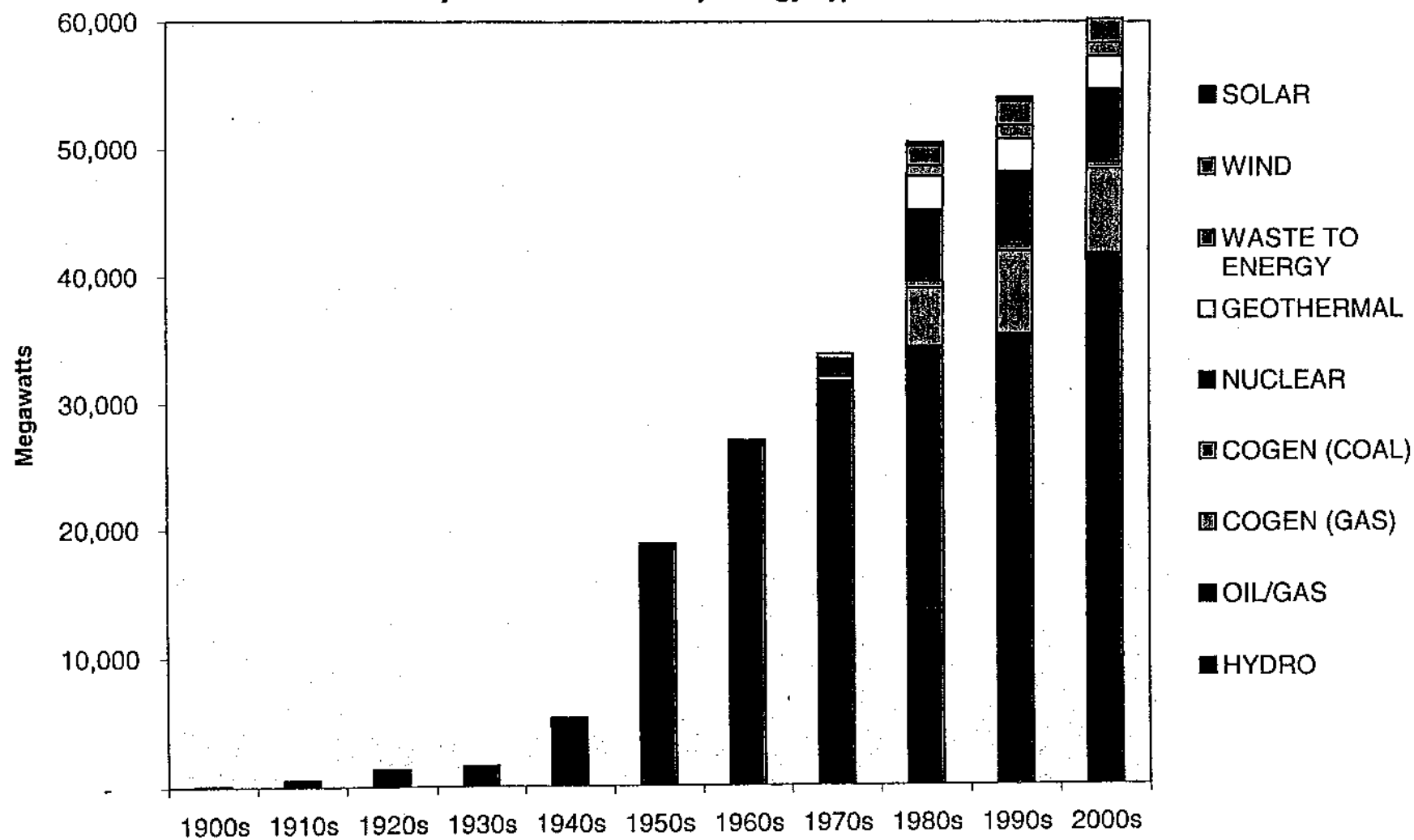


Fig. II-5. Sources of California Electrical Energy Consumption

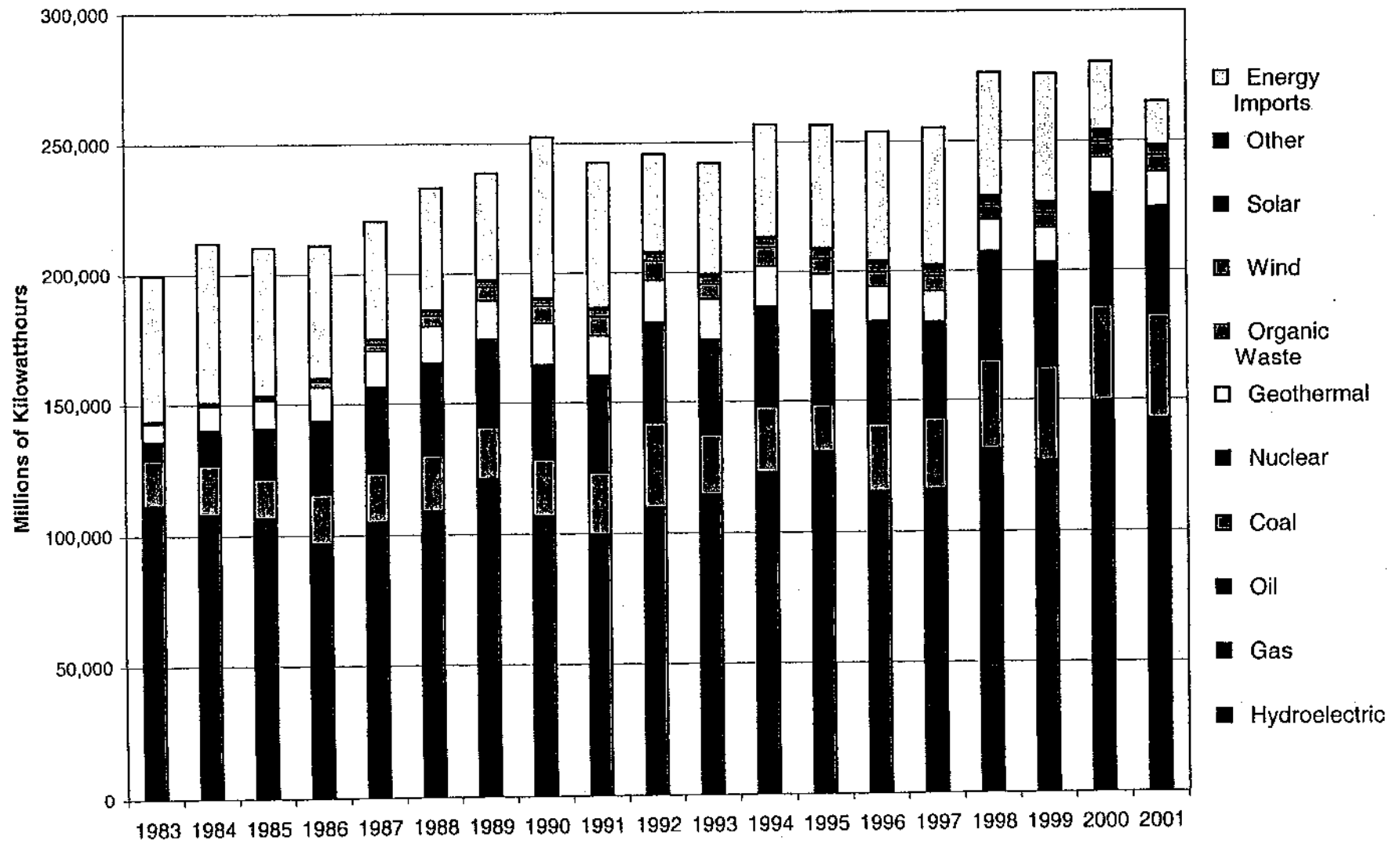


Figure 2. HYDRO GENERATION & CENTRAL VALLEY RUNOFF

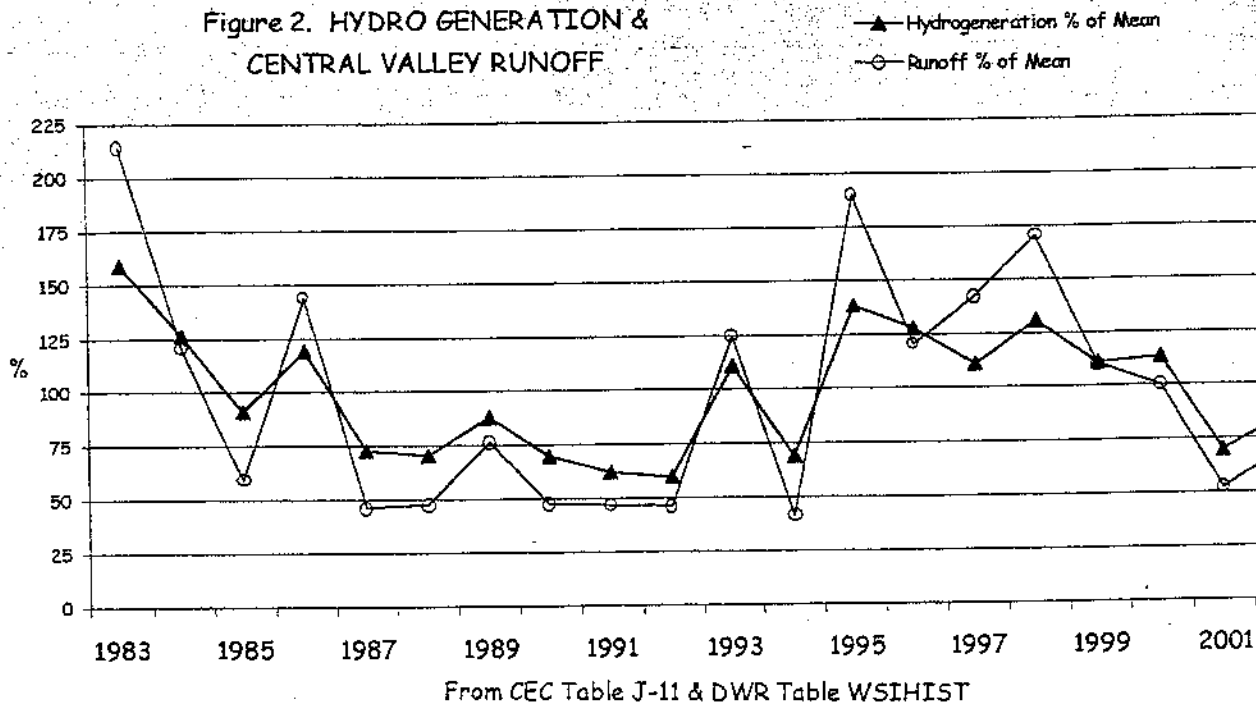
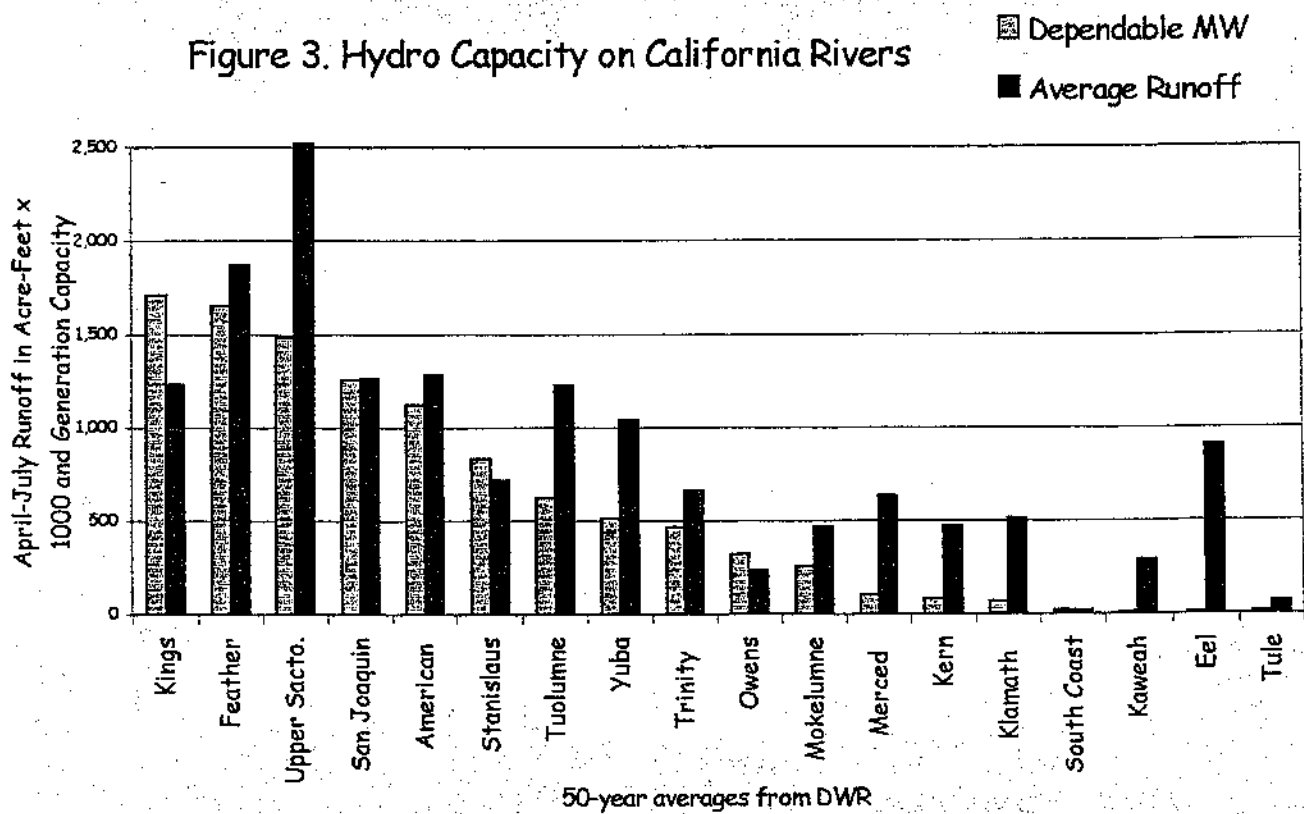
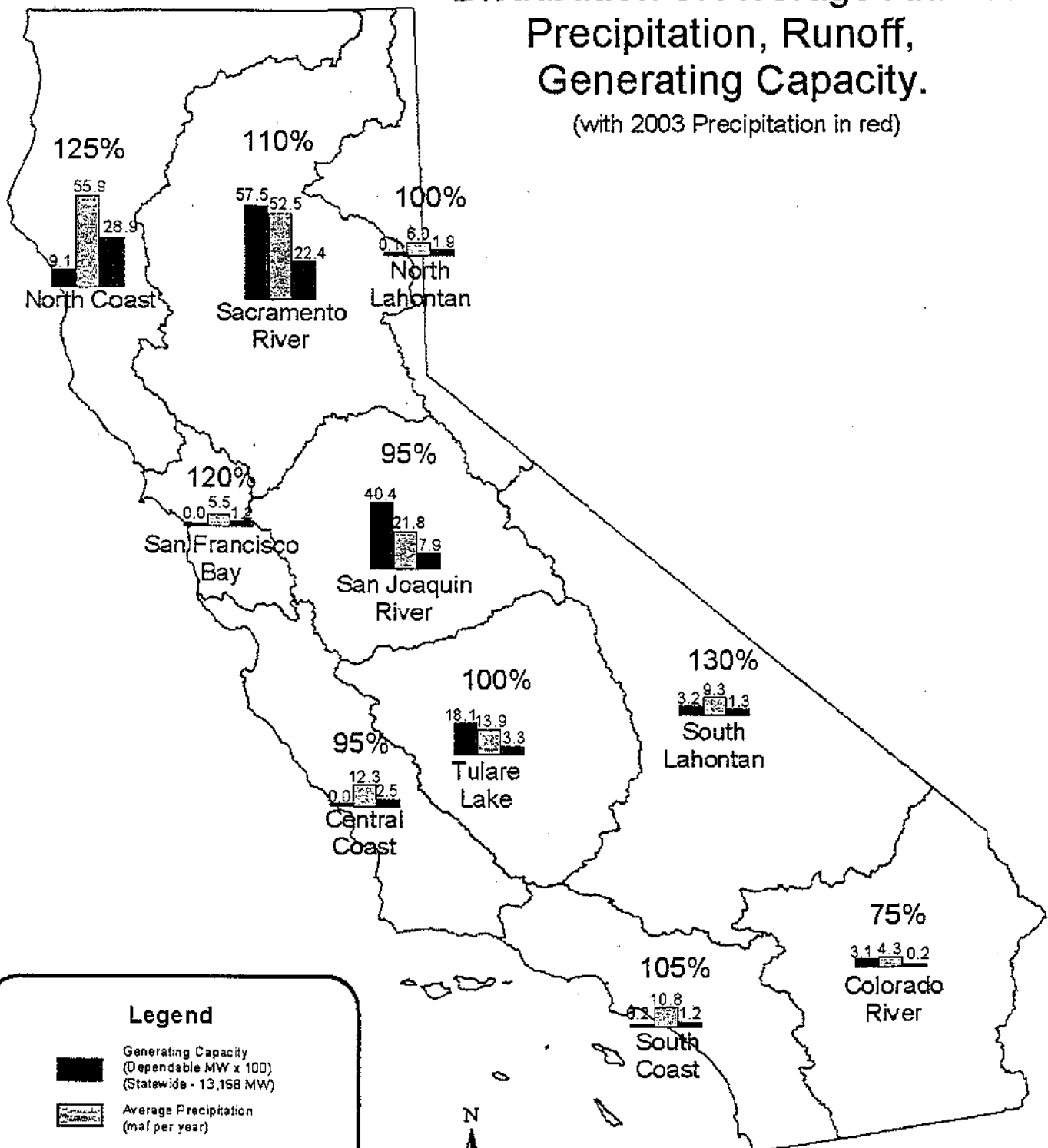


Figure 3. Hydro Capacity on California Rivers






**Figure 4.**  
**Distribution of Average Annual**  
**Precipitation, Runoff,**  
**Generating Capacity.**

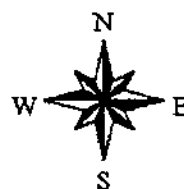
(with 2003 Precipitation in red)



**Legend**

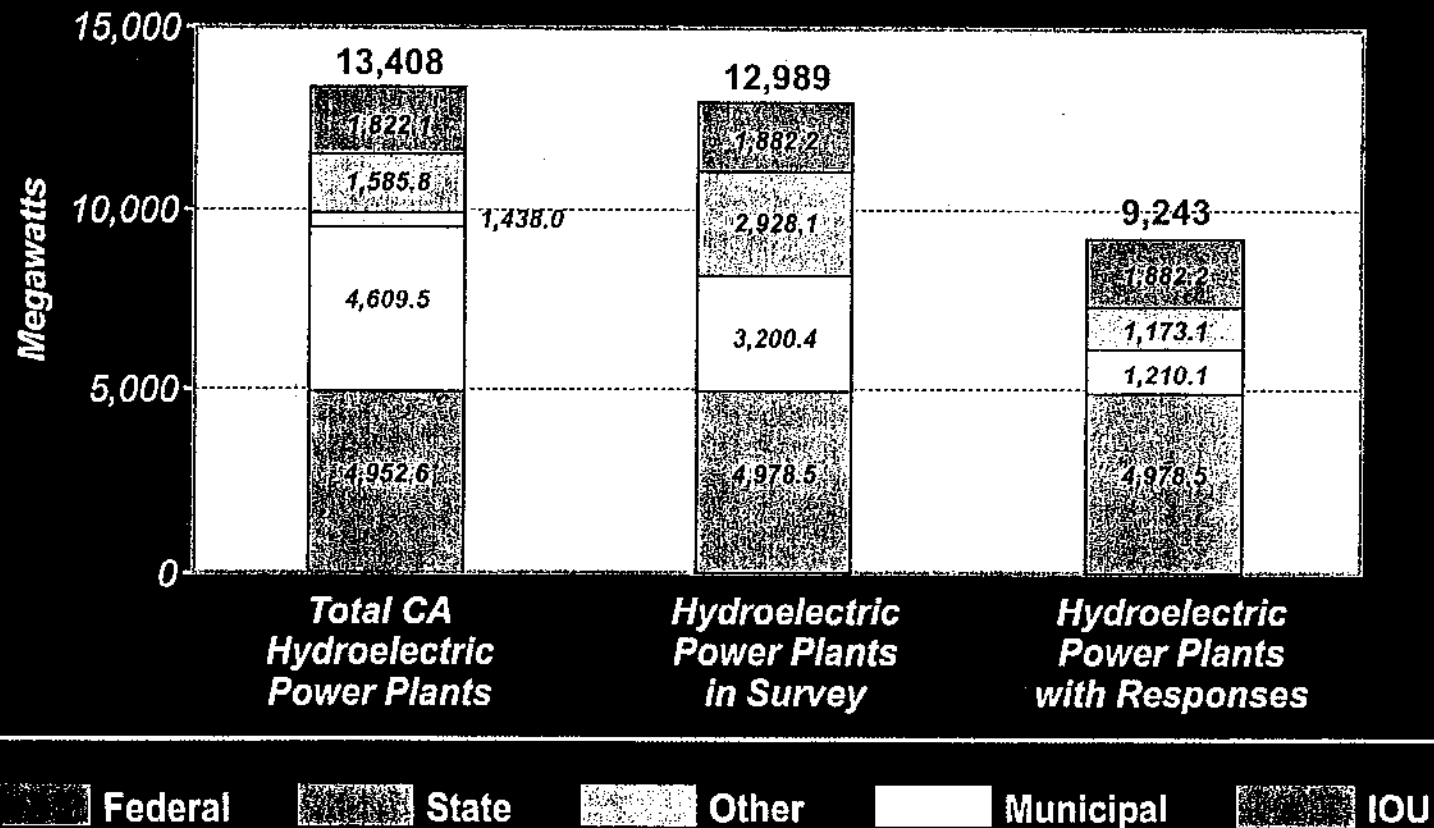
-  Generating Capacity  
(Dependable MW x 100)  
(Statewide - 13,168 MW)
-  Average Precipitation  
(maf per year)
-  Average Runoff  
(maf per year)

% of Seasonal Precipitation  
 October 1, 2002 through May 1, 2003  
 (Statewide = 110% of Average)

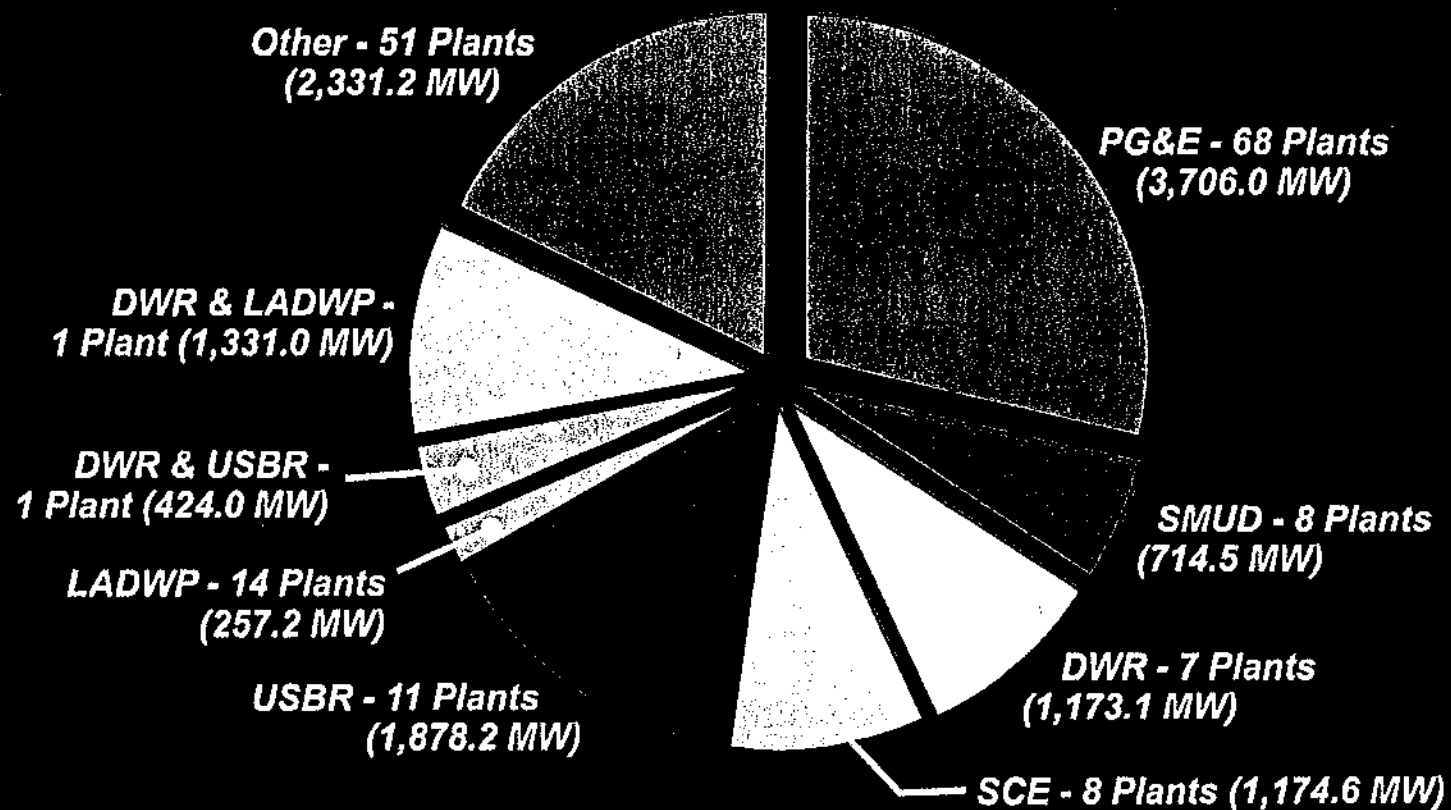


50 0 50 100 150 Miles

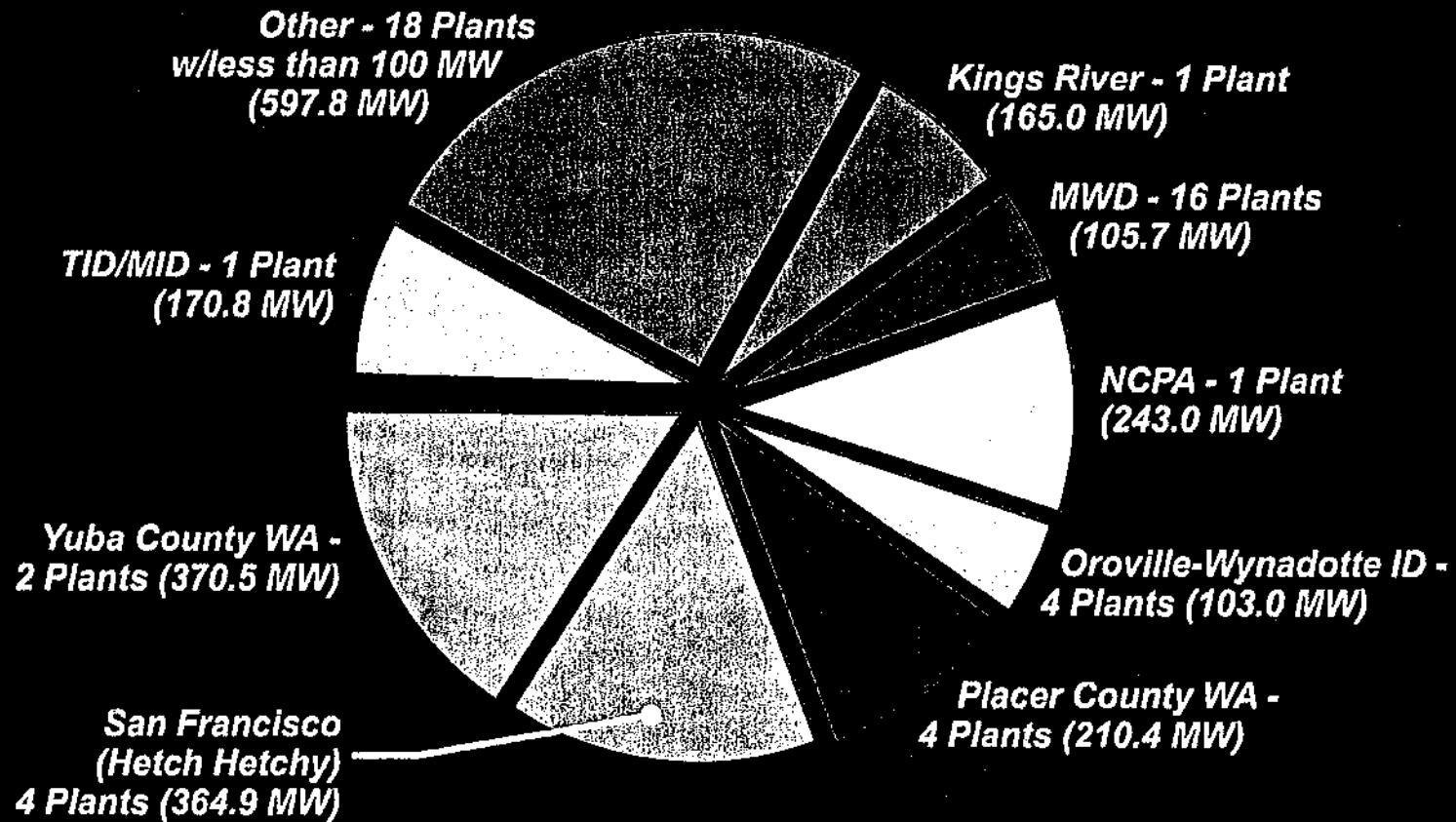
## MEGAWATTS BY HYDROELECTRIC OWNER



## POWER PLANT OWNERSHIP (by MW)

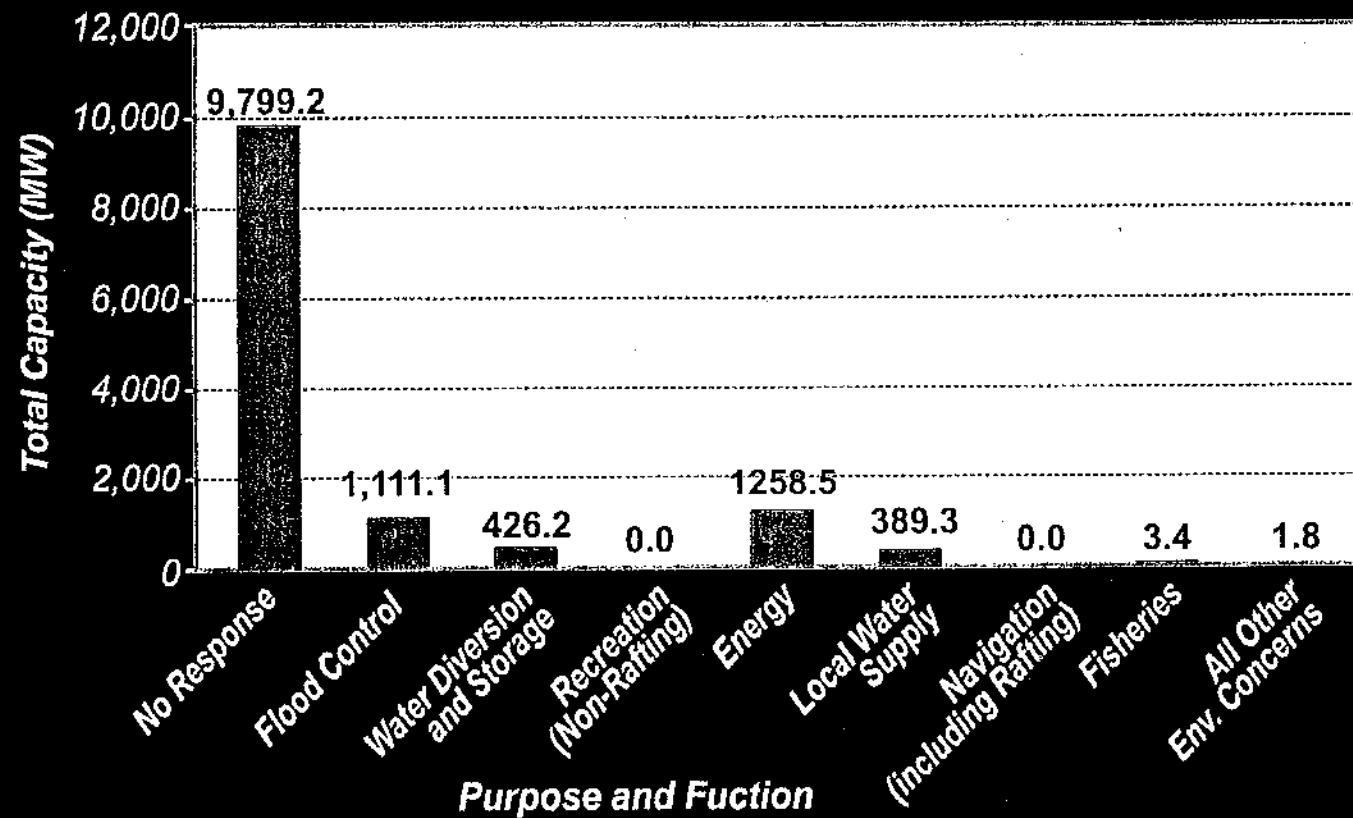


## OTHER POWER PLANT OWNERS (by MW)



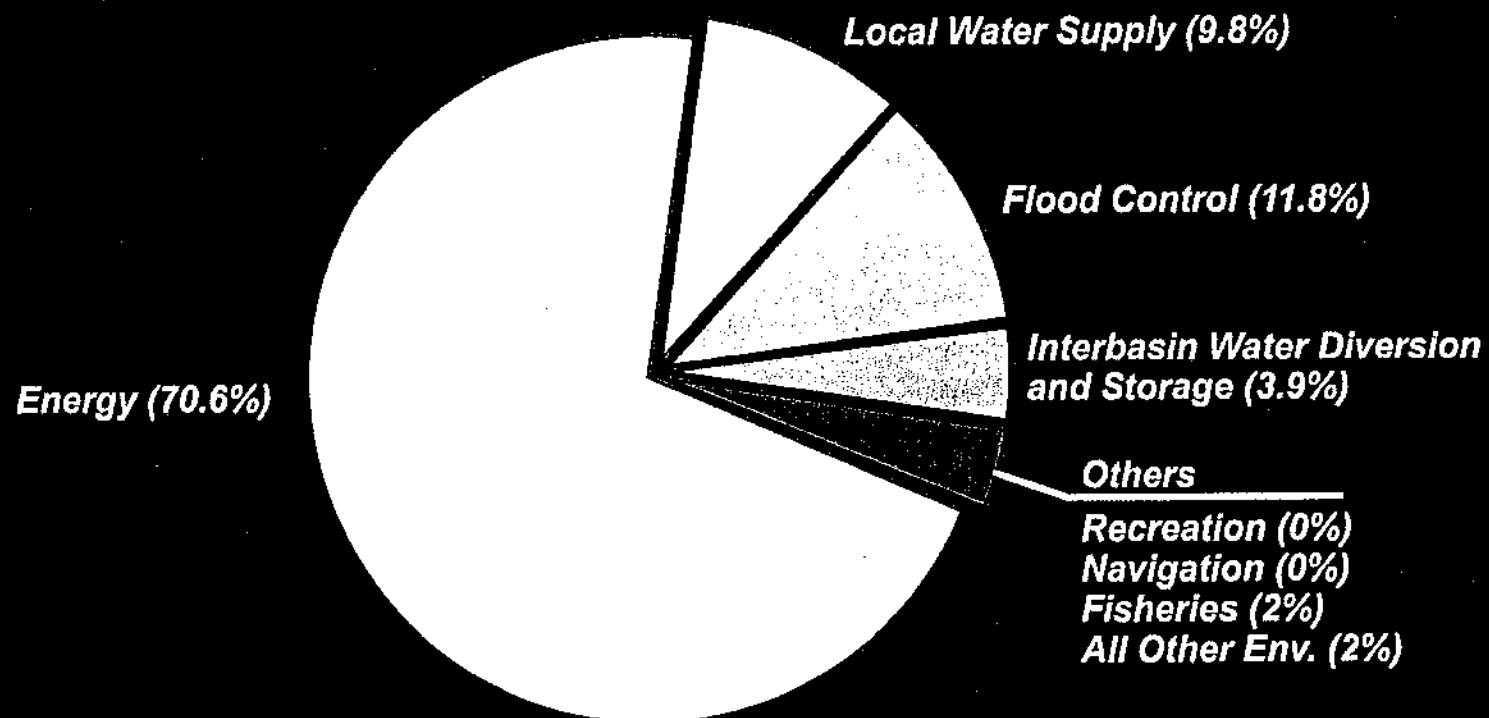


## HYDROELECTRIC OWNER'S RANKING OF PRIMARY PURPOSE AND FUNCTION



## HYDROELECTRIC OWNER'S RANKING FOR PERCENTAGE OF PURPOSE AND FUNCTION RANKINGS

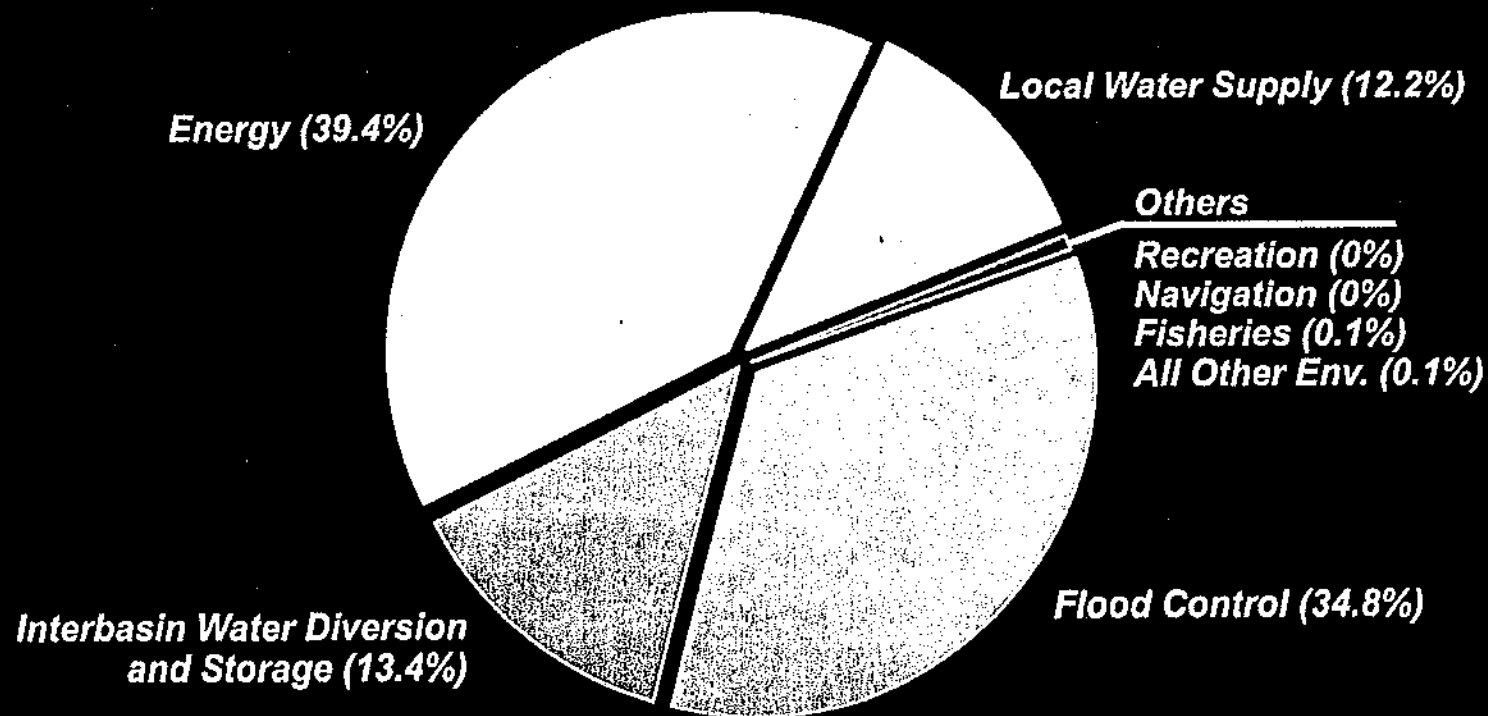
(Based on Data Responses)\*



\*Only represents 33 of 235 Plants

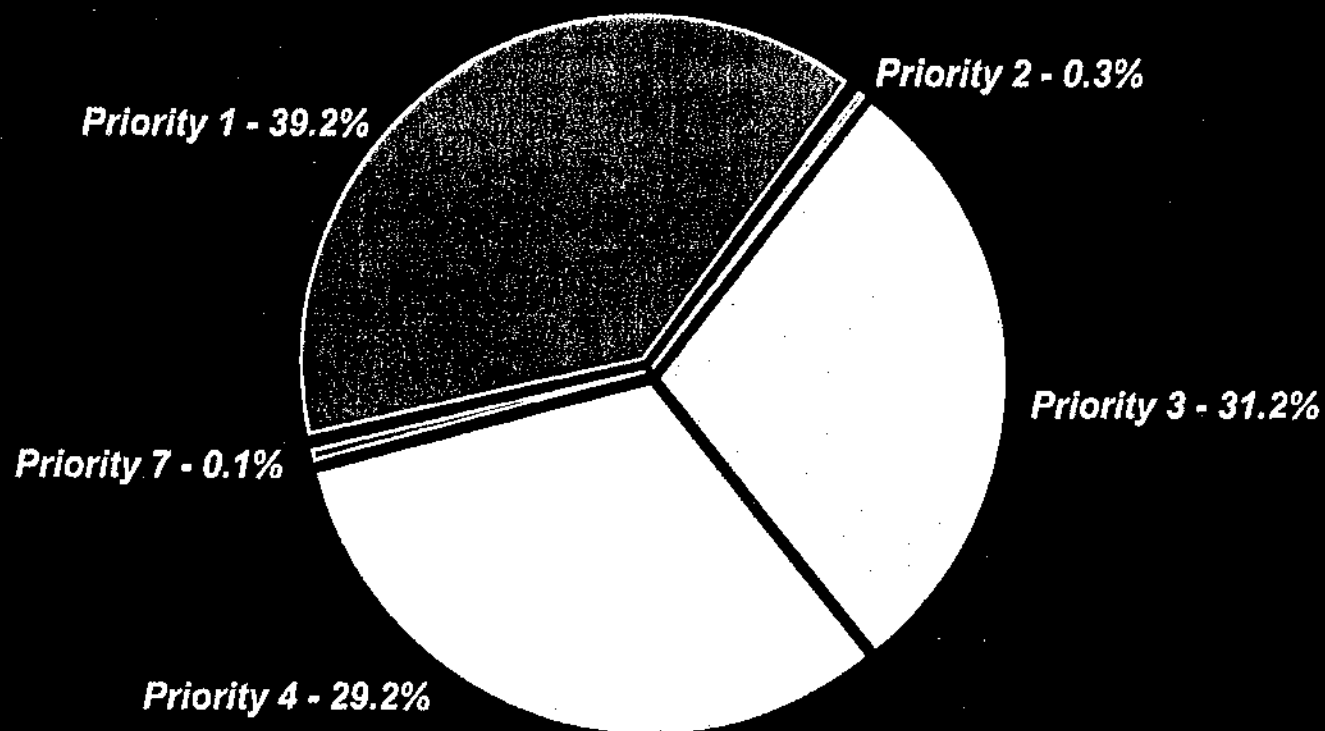
## HYDROELECTRIC OWNER'S RANKING FOR PRIMARY PURPOSE AND FUNCTION\*

(% of MW) (Based on Data Responses)



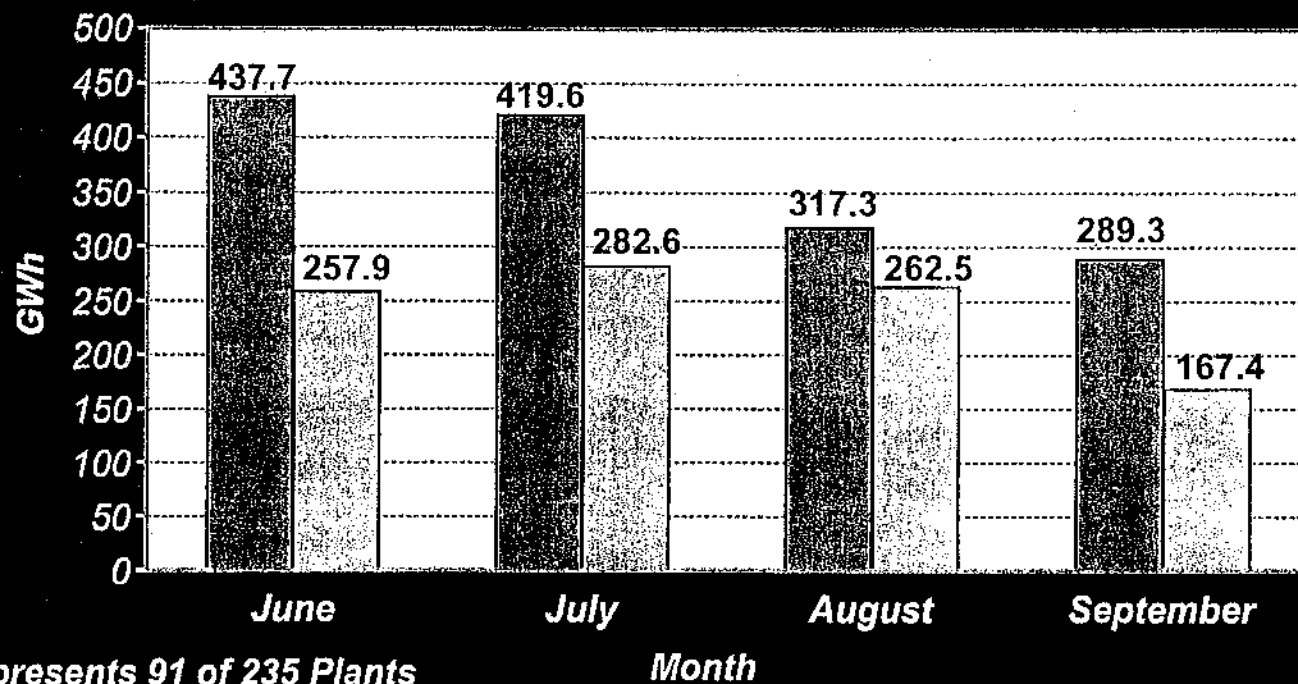
\* Represents 33 of 235 Plants

## **HYDROELECTRIC OWNER'S RANKING FOR ENERGY PRODUCTION\* (% of MW) (Based on Data Responses)**



*\*Only represents 53 of 235 Plants*

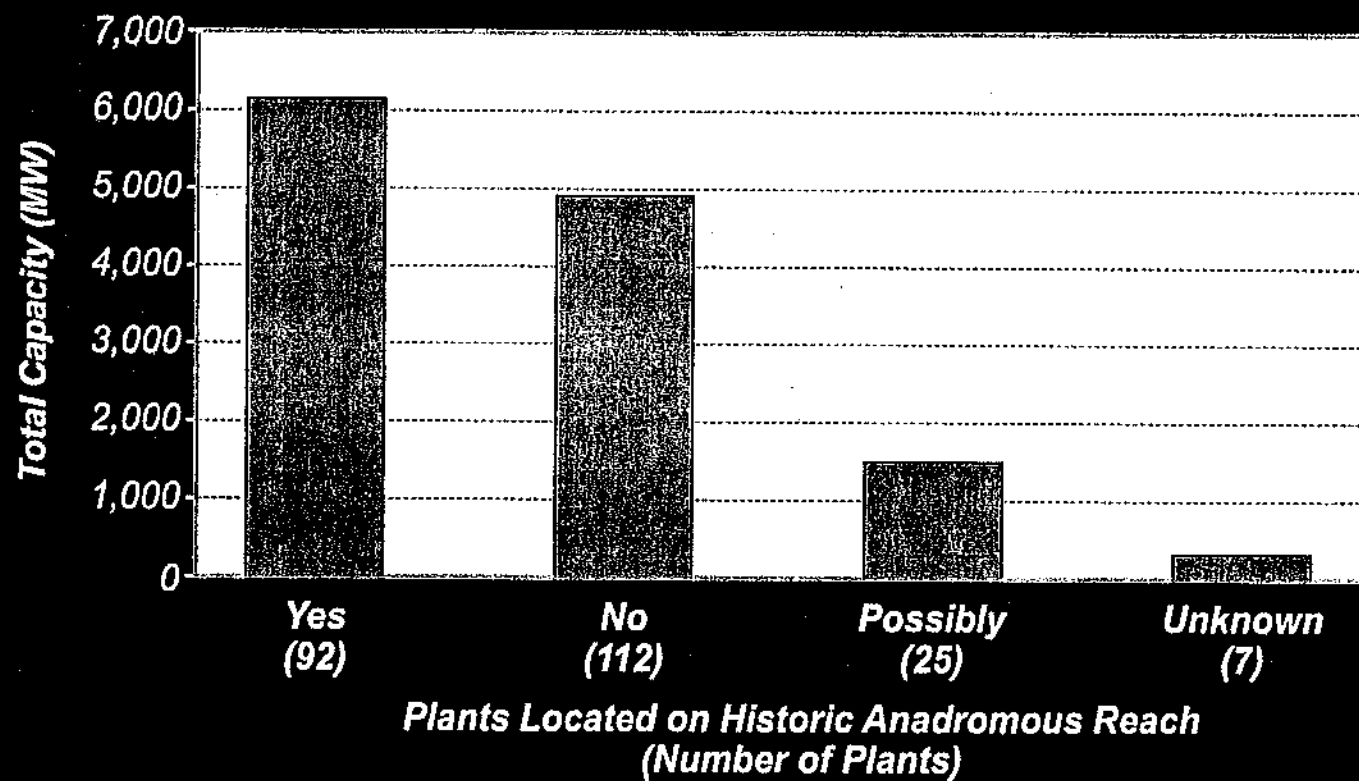
## TOTAL HISTORIC AVERAGE VS. TOTAL HISTORIC MINIMUM ENERGY PRODUCTION (Based on Data Responses)\*



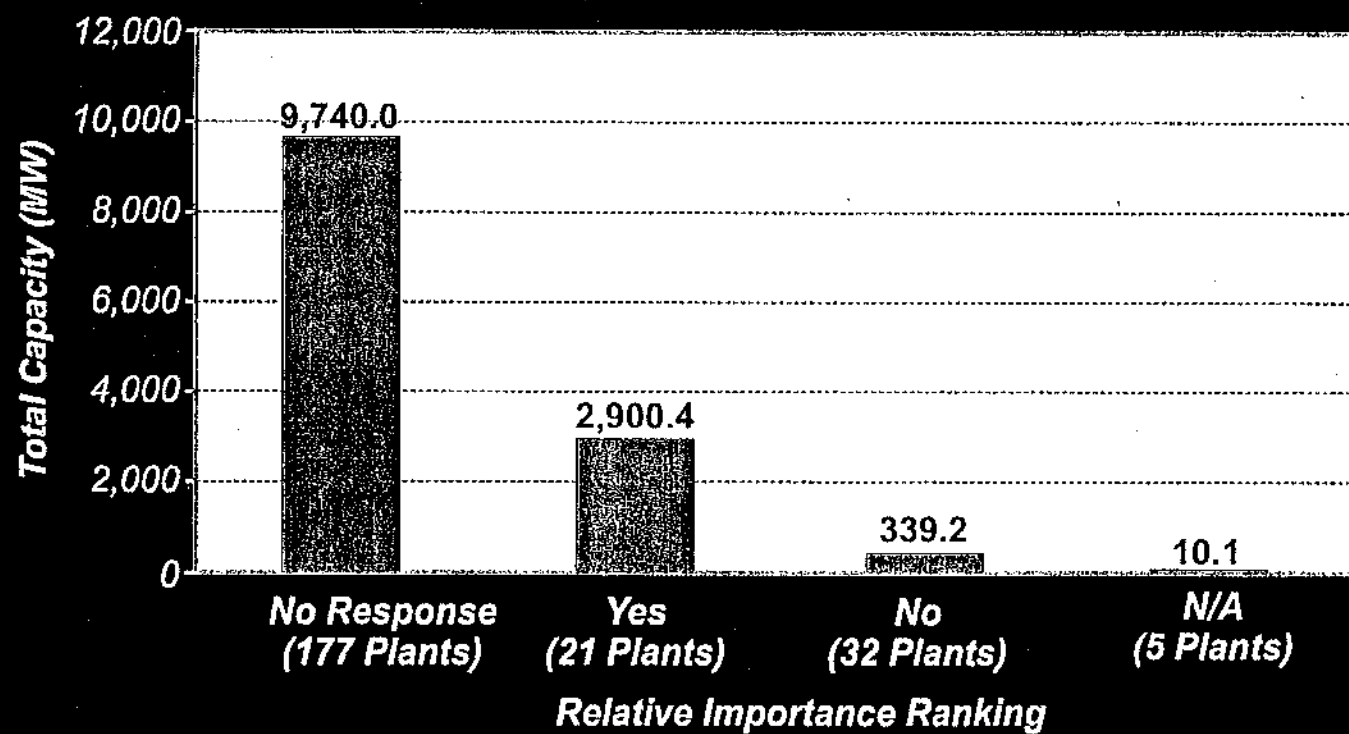
Historic Average (GWh)

Historic Minimum Energy Production (GWh)

## HYDROELECTRIC PLANTS LOCATED ON HISTORIC ANADROMOUS FISH REACH

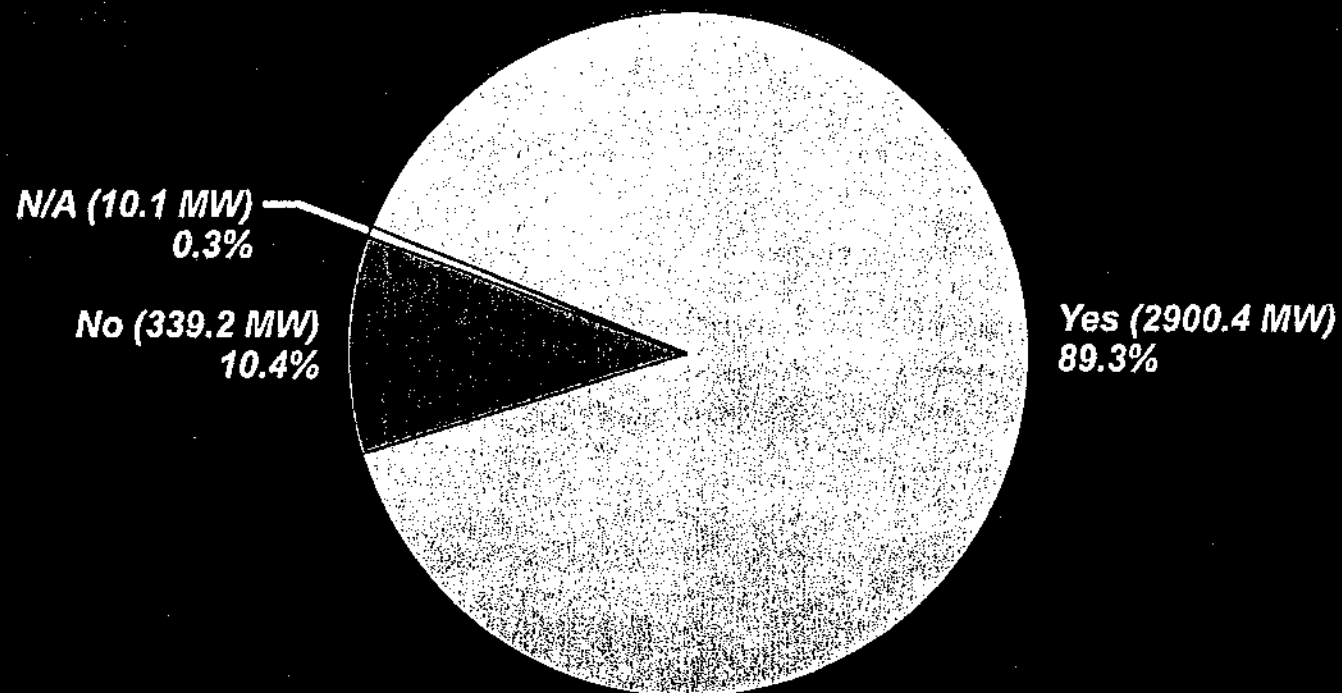


## DISPATCHABLE HYDROELECTRIC POWER PLANTS



## DISPATCHABLE HYDROELECTRIC POWER PLANTS

(% of MW) (Based on Data Responses)\*



\* Represents 58 of 235 Plants